

## CLAIMS

We Claim:

1 A method for testing an integrated circuit package having a plurality of daisy chain loops, each daisy chain connected to a pair of package pads, wherein adjacent daisy chain loops are oppositely biased, the method comprising:

- (a) forming a first plurality of gangs of electrically coupled daisy chain loops having a first bias;
- (b) forming a second plurality of gangs of electrically coupled daisy chain loops having a second bias;
- (c) individually coupling each one of the first plurality of gangs to an electrical measurement device;
- (d) electrically coupling the second plurality of gangs in common, forming a common gang, and coupling the common gang to the electrical measurement device; and
- (e) using the electrical measurement device to indicate whether there is any leakage between one or more of the first plurality of gangs and the common gang, thereby eliminating the need to use an ATE tester and device under test (DUT) circuit board to perform reliability tests.

2 The method of claim 1 further including the step of: electrically connecting the first and second pluralities of gangs in parallel to a first and second edge card connectors.

3 The method of claim 2 further including the step of: coupling the first and second edge card connectors to a gang testing board.

4 The method of claim 3 further including the step of: providing the gang testing board with wire fingers for coupling the first plurality of gangs to the first edge card connector and for coupling the second plurality of gangs to the second edge card connector.

5 The method of claim 4 further including the step of:

- (f) if the electrical measuring device indicates a leak is present, then electrically coupling each one of the second plurality of gangs to the electrical measurement device, and electrically coupling the first plurality of gangs in common, and coupling the common gang to the electrical measurement device; and
- (g) using the electrical measuring device to identify which one of the second plurality of gangs is leaking.

6 The method of claim 5 further including the step of:

- (h) manually probing to identify which one of the daisy chained loops in the identified gang is leaking.

7 The method of claim 6 wherein the first bias is positive and the second bias is negative.

8 The method of claim 7 wherein adjacent gangs formed by the wire fingers are oppositely biased.

9 The method of claim 8 wherein the electrical measuring device comprises a data logger.

10 The method of claim 8 wherein the electrical measuring device comprises an ohm meter.

11 The method of claim 4 wherein the gang testing board is provided with edge card connectors on all four sides.

12 A reliability testing system for testing integrated circuit packages, comprising:

- a test package mounted to a test socket wherein the test package includes an array of pads in which pairs of the pads are connected to form daisy chain loops, wherein adjacent lines of the daisy chain loops alternate between having a first bias and a second bias;

- a gang testing board on which the test package and the test socket are mounted, the gang testing board including,

- a first edge card connector, a second edge card connector, and wire fingers, wherein the wire fingers are coupled to the pads of the test package such that multiple gangs of daisy chain loops having the first bias are coupled to the first edge card connector, and multiple gangs of daisy chain loops having the second bias are coupled to the second edge card connector;

- an electrical measuring device coupled to the first and second edge card connectors for measuring cumulative leakage between the adjacent lines of the daisy chain loops, wherein the first edge card connector

individually couples each one of the gangs having the first bias to the electrical measuring device, and the second edge card connector electrically shorts each of the gangs having the second bias to form a common gang, and the common gang is coupled to the electrical measuring device; and

wherein the electrical measuring device indicates whether there is any leakage between one or more of the gangs having a first bias and the common gang, thereby eliminating the need to use an ATE tester and device under test (DUT) circuit board to perform reliability tests.

13 The system of claim 12 wherein the gangs are electrically connected in parallel to the first and second edge card connectors.

14 The system of claim 13 wherein if the electrical measuring device indicates a leak is present, then the test is repeated by

- (a) electrically coupling each one of the gangs having the second bias to the electrical measurement device, and electrically coupling the gangs having the first bias, and coupling the common gang to the electrical measurement device, and
- (b) using the electrical measuring device to identify which one of the second plurality of gangs is leaking.

15 The system of claim 14 wherein which one of the daisy chained loops in the identified gang is leaking may be identified through manual probing.

16 The system of claim 15 wherein the first bias is positive and the second bias is negative.

17 The system of claim 16 wherein adjacent gangs formed by the wire fingers are oppositely biased.

18 The system of claim 17 wherein the electrical measuring device comprises a data logger.

19 The system of claim 17 wherein the electrical measuring device comprises an ohm meter.

20 The system of claim 12 wherein the gang testing board is provided with edge card connectors on all four sides.